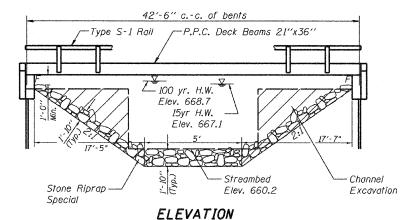
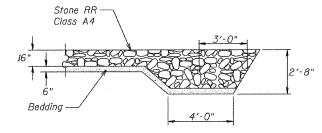
B.M. #1 - Sta. 46+65, 18.9' Left, Survey Spike in Power Pole, Elev. 670.18 B.M. #2 - NE End of North Hub Guard, Elev. 672.03 B.M. #3 - Sta. 53+23, 16.6' Left, Survey Spike in Power Pole, Elev. 672.74

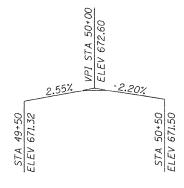
Existing Structure - Structure 092-3217 consists of a two span reinforced concrete deck on steel I-beams on closed concrete abutments. The bk. to bk. of abutments length is 30' and the out-to-out width is 18'. The existing structure shall be completely replaced. Road closure shall be used during construction.

Salvage- Any material deemed salvageable by the Engineer shall be stockpiled on the R.O.W. and shall become the property of Vermilion County. The Contractor shall dispose of all remaining material.





## SECTION A-A



#### PROFILE GRADE

# DESIGN STRESSES

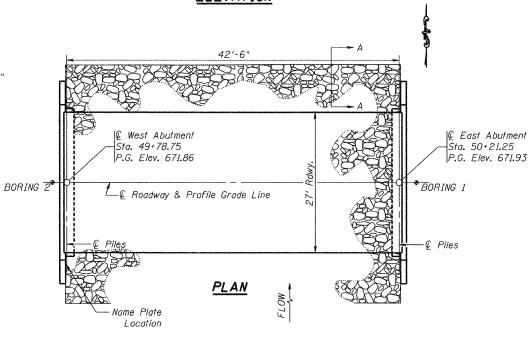
FIELD UNITS

f'c = 3,500 psi Fy = 60,000 psi (reinforcement)

#### PRECAST PRESTRESSED UNITS

f'c = 6,000 psi f'ci = 5,000 psi  $F's = 270,000 \text{ psi } \binom{l_2"}{l_2"} \text{ low relax. strands}$   $Fsi = 201,960 \text{ psi } \binom{l_2"}{l_2"} \text{ low relax. strands}$ 





#### DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications - 4th ed.

# LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

#### SEISMIC DATA

Seismic Performance Zone (SPZ) = 1 Design Spectral Acceleration at 1.0 sec.  $(S_{D1}) = 0.101$ Design Spectral Acceleration at 0.2 sec.  $(S_{D2}) = 0.191$ Soil Site Class = C

#### PILE DATA (2-ABUTS.)

Туре	STEEL HP 10 x					
Nominal Required Bearing	305 kips					
Factored Resistance Available	152 kips					
Estimated Pile Length	60' EAST ABT.					
	55' WEST ABT.					
Number of Production Piles	8					
Number of Test Piles	2					

FREEDWELL BRANCH BUILT 201\_ BY VERMILION COUNTY SEC. 08-09121-00-BR PROJECT NO. BROS-0183(306) TR 413 STA. 50+00 STR. NO. 092-3514 LOADING HL-93

## LETTERING FOR NAME PLATE

Locate Name Plate on the outside face of the Southeast Wingwall.

#### WATERWAY INFORMATION

WAT 2710AT 110 OTMAT 100										
Drainage Area = 1.95 SQ MI 🛮 Low Grade Elev. = 669.53 🛭 Sta. 48+00										
Flood	Freq.	Q	Opening Sq. Ft.		Nat. Head - Ft.		Headwater El.			
F100a	Yr.	C.F.S.	Exist.	Prop.	H.W.E.	Exist.	Prop.	Exist.	Prop.	
Design	15	355	116.3	136.3	667.1	0.0	0.0	667.1	667.1	
Base	100	561	159.5	194.9	668.7	0.1	0.0	668.8	668.7	
Overtopping										
Max. Calc.	500									

#### GENERAL NOTES

- 1. The Contractor shall drive 1 test pile at each abutment, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
- 2. See Bridge Plan Sheet 7 for boring logs.
- 3. A Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
- 4. Concrete sealer shall be applied to exterior face of each fascia beam.
- 5. The Steel H-piles shall be according to AASHTO M270 grade 50.
- 6. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.
- 7. Reinforcement bars designated (E) shall be epoxy coated.
- 8. Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- 9. The Contractor shall drive test piles to 110% of the nominal required bearing specified in the production location at substructures specified or approved by the engineer before ordering the remainder of piles.

### TOTAL BILL OF MATERIAL

			***************************************	
Item	Unit	Super	Sub. Abuts.	Total
Removal of Existing Structures	Each	-	-	1
Concrete Structures	Cu. Yd.	-	18.3	18.3
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1173	-	1173
Steel Bridge Railing, Type S-1	Foot	87	-	87
Reinforcement Bars, Epoxy Coated	Pound	-	2440	2440
Furnishing Steel Piles HP 10x42	Foot	-	460	460
Driving Piles	Foot	-	460	460
Test Piles Steel HP 10x42	Each	-	2	2
Name Plates	Each	1	-	1
Concrete Cut-off Wall	Cu. Yd.	-	5.2	5.2
Structure Excavation	Cu. Yd.	-	77.7	77.7
Stone Riprap Class A4 (Special)	Sq. Yd.	•	273	273
Channel Excavation	Cu. Yd.	-	60	60
Controlled Low-Strength Material	Cu. Yd.	~	40.9	409
Pile Shoes	Each	-	10	10

## INDEX OF SHEETS

- 1. General Plan & Elevation
- 2. Superstructure
- 3. Superstructure Details
- 4. Steel Railing 5. Abutment Details

-PROPOSED

BRIDGE

2 P.M.

LOCATION SKETCH

6. Pile Details 7. Boring Logs



Daniel Feuerborn

2.24.2010

License Expires 11-30-2010

I certify that to the best of knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.

# GENERAL PLAN & ELEVATION TR 413 OVER FREEDWELL BRANCH

DATE: 02-05-10 DRAWN BY: JEH CHECKED BY: DF TOTAL SHEET SHEETS NO. F.A. RTE. SECTION COUNTY SHEET NO. 1 08-09121-00-BR VERMILION 14 OF 7 SHEETS SN 092-3514 CONTRACT NO. 91431 FED. ROAD DIST. NO. \_ ILLINOIS FED. AID PROJECT